

- individual migration routes of Eleonora's falcon. *Proc. Roy. Soc. Lond. B* 275: 2887–2896.
- Hivekovics, A. & Palatitz, P. 1998. Summary of a study by Hungarian ornithologists on Mount Cameroon. *Bull. ABC* 5: 97–100.
- Lamarche, B. 1988. Liste commentée des oiseaux de Mauritanie. *Études Sahariennes et Ouest-Africaines* 1(4): 1–162. Nouakchott & Paris: privately published.
- Lopez-Lopez, P., Liminana, R., Mellone, U. & Urios, V. 2010. From the Mediterranean Sea to Madagascar. Are there ecological barriers for the long-distance migrant Eleonora's falcon? *Landscape Ecol.* 25: 803–813.
- McGrady, M. J., Nicoll, M. A. C. & Thorpe, A. W. 2009. Report on fieldwork to study the status and distribution of breeding sooty falcons (*Falco concolor*) on the northern islands of Oman—2009. Unpubl. rep. Natural Research Ltd. & Centre for Agri-Environmental Research, Reading University.
- Meininger, P. L., Duiven, P., Marteijs, E. C. L. & Van Spanje, T. M. 1990. Notable bird observations from Mauritania. *Malimbus* 12: 19–24.
- NiBDaB (Niger Bird Data Base). 2010. <http://www.bromus.net/nibdab/> (accessed 25 August 2010).
- Thiollay, J.-M. 1977. Distribution saisonnière des rapaces diurnes en Afrique occidentale. *Oiseau & R.F.O.* 47: 253–285.
- Walter, H. 1979. The sooty falcon (*Falco concolor*) in Oman: results of a breeding survey. *J. Oman Stud.* 5: 9–59.
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An attack by a Hoopoe *Upupa epops* on a Guttural Toad *Amietophrynus gutturalis*

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Une attaque d'une Huppe fasciée *Upupa epops* sur un Crapaud guttural *Amietophrynus gutturalis*.

Le 20 novembre 2008, une Huppe fasciée *Upupa epops* a été observée donnant des coups de bec violents à un Crapaud guttural *Amietophrynus gutturalis* adulte sur la pelouse d'un jardin urbain à Springs, Gauteng, Afrique du Sud. Le crapaud était clairement mort depuis peu, peut-être à cause de l'attaque de la Huppe. Ceci semble être la première donnée concernant une Huppe fasciée attaquant un Crapaud guttural.

On 20 November 2008, DS noticed a Hoopoe *Upupa epops* pecking vigorously at a relatively large object c.10 m from him on his lawn in Springs, east of Johannesburg, Gauteng, South Africa. He went into the house to retrieve his camera, and when he returned the Hoopoe was foraging a short distance from the object, which appeared to be an anuran. The Hoopoe suddenly returned to the motionless anuran and pecked at its head and body quite vigorously (Figs. 1–2) for the next two minutes, after which it resumed foraging for a short period before flying away. Examination of the anuran (Fig. 3) revealed that it was a Guttural Toad *Amietophrynus gutturalis*, one of the commonest anurans in southern Africa, which is often found near buildings in towns

and suburbs (Channing 2001). The animal died very recently, possibly as a result of the Hoopoe's attack, as its blood had not yet coagulated and *rigor mortis* had not yet set in.

It is unclear why the Hoopoe pecked at the toad. No other Hoopoes were observed in the immediate vicinity, and no nest holes were found in the garden, so it was unlikely a defensive action. Hoopoes feed primarily on large insects, their larvae and pupae, and other invertebrates, and the species occasionally hawks flying termites, although they are also known to take small vertebrates, such as lizards, snakes and frogs (Krištín 2001, Hockey *et al.* 2005). However, due to the toad's size (snout–vent length c.7 cm), it seems unlikely that the animal would



Figures 1–2. Hoopoe *Upupa epops* pecking at Guttural Toad *Amietophrynus gutturalis*, Springs, Gauteng, South Africa, 20 November 2008 (Dirk Stevens)

Huppe fasciée *Upupa epops* donnant des coups de bec violents à un Crapaud guttural *Amietophrynus gutturalis*, Springs, Gauteng, Afrique du Sud, 20 novembre 2008 (Dirk Stevens)

have constituted ‘normal’ prey for the Hoopoe. However, the toad was possibly weakened or dying, and as a result may have been regarded by the Hoopoe as a possible prey item.

As far as can be determined, this appears to be the first reported description of such an attack by a Hoopoe on a Guttural Toad.



Figure 3. The Guttural Toad *Amietophrynus gutturalis* after the Hoopoe *Upupa epops* had abandoned its attack, Springs, South Africa, 20 November 2008 (Dirk Stevens); the injury to the left hind limb illustrates the severity of the attack, although it would not have resulted in the death of the toad.

Le Crapaud guttural *Amietophrynus gutturalis* après que la Huppe fasciée *Upupa epops* avait abandonné son attaque, Springs, Gauteng, Afrique du Sud, 20 novembre 2008 (Dirk Stevens) ; la blessure au membre postérieur gauche illustre la sévérité de l’attaque, quoique cette blessure n’ait pas causé la mort du crapaud.

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References

- Channing, A. 2001. *Amphibians of Central and Southern Africa*. Pretoria: Protea Book House.
- Krištín, A. 2001. Family Upupidae (hoopoes). In del Hoyo, J., Elliott, A. & Sargatal, J. (eds.) *Handbook of the Birds of the World*. Vol. 6. Barcelona: Lynx Edicions.
- Hockey, P. A. R., Dean, W. R. J. & Ryan, P. G. (eds.) 2005. *Roberts—Birds of Southern Africa*. Seventh edn. Cape Town: Trustees of the John Voelcker Bird Book Fund.

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